



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
EMERGENCY RESPONSE BRANCH
9311 GROH ROAD, ROOM 216
GROSSE ILE, MI 48138-1697

JUN 26 2003

REPLY TO ATTENTION OF:

MEMORANDUM

SUBJECT: **ACTION MEMORANDUM** - Request for an Emergency Removal Action at the Kay Drive Mercury Spill Site, Zanesville, Muskingum County, Ohio (Site ID #B56C)

FROM: Michelle L. Jaster, On-Scene Coordinator
Emergency Response Branch - Section 1 *mLJaster*

THRU: Jason H. El-Zein, Chief *Richard H. Buckley for*
Emergency Response Branch - Section 1

TO: Richard Karl, Chief
Emergency Response Branch

I. PURPOSE

The purpose of this memorandum is to request and document your approval to expend up to \$19,250 in order to mitigate immediate threats to public health, welfare, and the environment at the Kay Drive Mercury Spill Site (Kay Drive Site) within the City of Zanesville, Muskingum County, Ohio, and to document your verbal approval of a \$12,000 Emergency and Rapid Response Services (ERRS) response cost ceiling initiated by Michelle L. Jaster, On-Scene Coordinator (OSC), Emergency Response Branch, on February 8, 2003. This response action was necessary to mitigate the immediate threat to public health, welfare, and the environment posed by a release of metallic mercury in the living room of a residential home.

This emergency response action was conducted pursuant to Section 104(a)(1) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Section 9604(a)(1), as amended, by locating, recovering, and cleaning up mercury spilled in the residential home. Off-site disposal of the mercury and mercury-contaminated media was also completed.

The removal action was considered an emergency response due to the presence of metallic mercury and elevated mercury vapor levels throughout the residence. This spill threatened the health and welfare of the occupants of the residence and local

neighbors due to the potential for the mercury to be tracked away from the house. This project required two on-site working days to complete.

The Kay Drive Site is not on the National Priorities List (NPL).

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID #OHN 000 508 677

A. Physical Location and Description

The Kay Drive Site consists of one residential property located at [REDACTED] Zanesville, Muskingum County, Ohio, 43701. The geographical coordinates for the Site are Latitude: [REDACTED]

In Ohio, the average low-income percentage is 30% and the average minority percentage is 13%. To meet the Environmental Justice (EJ) concern criteria, the area within 1 mile of the Pike County Site must have a population that is twice the State low-income percentage and/or twice the State minority percentage. That is, the area must be at least 60% low-income and/or 26% minority. The low-income percentage in the area affected by the spill is 17.5% and the minority percentage is 0.0%, as determined by LandView IV EJ analysis. Therefore, this Site does not meet the Region's EJ case criteria based on demographics as identified in "Region 5 Interim Guidelines for Identifying and Addressing a Potential EJ Case, June 1998."

B. Site Background

The mercury spill occurred in a single story private residence consisting of 3 bedrooms, a living room, a dining room, two bathrooms, and a kitchen. The mercury was spilled in the living room of the residence on February 7, 2003.

The Ohio Environmental Protection Agency (Ohio EPA) contacted U.S. EPA on February 7, 2003, regarding a residential mercury spill at [REDACTED] in Zanesville, Ohio. Ohio EPA OSC Dennis Deavers had received a call from the Falls Fire Department and the Muskingum County Disaster Services that visible mercury was present in the living room of the residence as a result of an accidental spill. The residents had discovered a jar containing elemental mercury in a closet in the home and had spilled it in the living room while moving it. Elemental mercury had spilled onto an end table, a recliner, and the living room carpet. The two elderly residents attempted to clean up the mercury spill with a standard household vacuum cleaner, and then contacted the local Fire Department. The Falls Fire Department recommended that the residents evacuate the residence for the evening. Ohio EPA requested U.S. EPA assistance in cleaning up the spill.

On February 8, 2003, the Tetra Tech, Inc., Superfund Technical Assessment and Response Team (START) conducted preliminary screening at the residence using a Lumex portable mercury vapor analyzer. Mercury vapor concentrations in the breathing zones ranged from 6.0 to 8.0 $\mu\text{g}/\text{m}^3$. The current acceptable level for residential homes, as recommended by the Agency for Toxic Substances and Disease Registry (ATSDR), is 1 $\mu\text{g}/\text{m}^3$. START also conducted mercury vapor monitoring at the local hotel where the residents had spent the night, and no elevated levels of mercury vapors were detected. Slightly elevated mercury vapor levels were initially discovered in the vehicle the residents had used to transport their pet dog to the hotel. However, once a rug was removed from the backseat of the vehicle and the car was ventilated, no elevated mercury levels were detected.

U.S. EPA and the Emergency and Rapid Response Services (ERRS) contractor, Environmental Restoration (ER), also mobilized to the affected residence on February 8, 2003. ERRS conducted clean-up operations including identifying and disposing of all mercury-contaminated items (including the living room carpeting); vacuuming the spill area with a specialized mercury vacuum; treating the spill area with a mercury decontamination solution; and heating and ventilating the home. At the conclusion of the removal actions on February 9, 2003, START documented acceptable mercury vapor concentrations throughout the breathing zones of the residence at 0.34 $\mu\text{g}/\text{m}^3$. Approximately 10 cubic yards of mercury-contaminated debris that had come into direct contact with the elemental mercury (carpeting, recliner, clothing, vacuum) were transported off-site for disposal. The living room carpeting was not replaced in the home due to the presence of finished hard wood floors underneath.

All activities were completed and all personnel were demobilized on February 9, 2003.

III. THREATS TO PUBLIC HEALTH, WELFARE, OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

The conditions at the Kay Drive Site presented a release and a potential threat of a release of a CERCLA hazardous substance, presenting an imminent and substantial endangerment to the public health, welfare, or the environment, and met the criteria for an emergency removal action provided for in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.415(b)(2). These criteria include:

- 1) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;**

This factor was present at the Kay Drive Site due to the presence of elevated mercury vapors throughout the household. The elevated mercury vapor levels were confirmed through an initial screening of the home with a Lumex mercury vapor analyzer.

Elevated levels of mercury vapors were found in the breathing zone as high as $8 \mu\text{g}/\text{m}^3$. Elemental mercury can easily be tracked from a house into the environment by foot traffic.

The presence of elemental mercury in the house posed a human health threat to the two elderly residents. Mercury is a silvery liquid at room temperature. Vaporization occurs even at room temperature, but increases substantially at increasing temperatures. Mercury vapor is highly toxic when inhaled, especially for sensitive populations such as infants, children, and the elderly. At high levels, mercury exposure can result in damage to the brain and kidneys. Mercury poses a threat through inhalation, ingestion, and direct contact routes of exposure, and can result in severe nausea, vomiting, abdominal pain, bloody diarrhea, kidney and liver damage, and even death. Metallic mercury vapor is highly toxic when inhaled, and attacks the central nervous system by destroying neurons.

Continued exposures to the family, as well as to any visitors or subsequent residents, were likely to occur until all of the mercury-contaminated areas were cleaned up to levels prescribed by health officials. The Zanesville-Muskingum County Health Department agreed with the following site-specific value as an appropriate, long-term cleanup action level for the residence based on the Agency for Toxic Substances and Disease Registry (ATSDR) guidelines:

- Residential $<1.0 \mu\text{g}/\text{m}^3$ Adults and older children

Mercury is a characteristic waste under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6901 et seq., as amended, and 40 C.F.R. § 261.24. Mercury exhibits the characteristic of toxicity and is therefore a hazardous substance under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

2) The availability of other appropriate federal or state response mechanisms to respond to the release.

The Ohio EPA requested U.S. EPA assistance with an emergency removal action at the Kay Drive site, as the elderly homeowners on a fixed income could not finance a clean-up on their own, and their homeowner's insurance would not cover the cleanup costs.

IV. ENDANGERMENT DETERMINATION

Given the Kay Drive Site conditions, the nature of the suspected hazardous substances on-site, and the potential exposure pathways described in Sections II and III above, actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response actions selected in this Action Memorandum, may have presented an imminent and substantial endangerment to public health, welfare, or the environment.

V. ACTIONS AND ESTIMATED COSTS

The purpose of this emergency removal action was to mitigate the immediate threats posed to the public health, welfare, and or the environment by the presence of metallic mercury and the associated elevated mercury vapor levels. Removal activities at the Kay Drive Site included recovery of all visible metallic mercury from the residence, the identification and disposal of all mercury-contaminated media (carpeting, clothing, etc.), and the off-site disposal of all characterized wastes identified and collected during removal activities. Specifically, the following activities were performed:

- 1) Developed and implemented a Site Health and Safety Plan;
- 2) Confirmed and characterized the extent of mercury contamination at the Kay Drive residential property;
- 3) Removed and properly disposed of mercury and mercury-contaminated materials from the residential property as necessary at approved disposal facilities, in accordance with the U.S. EPA Off-Site Rule, 40 C.F.R. § 300.440; and
- 4) Decontaminated affected building structures and conducted air confirmation monitoring to verify that the building had been decontaminated to acceptable levels.

The OSC has initiated planning for the provision of post-removal Site control, consistent with the provisions of § 300.415(l) of the NCP. The nature of this emergency removal action, the complete removal of mercury and mercury-contaminated media from the Site, eliminated the need for any post-removal Site control.

The detailed cleanup contractor cost estimate is presented in Attachment 1 and estimated project costs are summarized below:

EXTRAMURAL COSTS:**Regional Removal Allowance Costs:**

| | |
|---|-----------------|
| Total Cleanup Contractor Costs | \$12,000 |
| (This cost category includes estimates for ERRS and subcontractors) | |

Other Extramural Costs Not Funded from the Regional Allowance:

| | |
|--|-----------------|
| Total START, including multiplier costs | \$ 5,500 |
|--|-----------------|

| | |
|-----------------------------------|-----------------|
| Subtotal, Extramural Costs | \$17,500 |
|-----------------------------------|-----------------|

| | |
|---|-----------------|
| Extramural Costs Contingency (10% of Subtotal, Extramural Costs) | \$ 1,750 |
|---|-----------------|

| | |
|--|-----------------|
| TOTAL, REMOVAL ACTION PROJECT CEILING | \$19,250 |
|--|-----------------|

The response actions described in this memorandum directly addressed the actual or threatened releases of hazardous substances, pollutants, or contaminants at the Kay Drive Site which may have posed an imminent and substantial endangerment to public health, welfare, or the environment. This response action did not impose a burden on affected property disproportionate to the extent to which that property contributes to the conditions being addressed.

Applicable or Relevant and Appropriate Requirements

All applicable, or relevant and appropriate requirements (ARARs) were complied with to the extent practicable. Federal ARARs for this Site include RCRA. As the materials being dealt with were likely to be RCRA characteristic wastes, they were handled accordingly. Air monitoring was conducted after cleanup and the results were found to be below the standard recommended by the ATSDR.

All hazardous substances, pollutants, or contaminants removed off-site pursuant to this removal action for treatment, storage, and disposal were treated, stored, or disposed of at a facility in compliance, as determined by U.S. EPA, with the U.S. EPA Off-Site Rule, 40 C.F.R. § 300.440.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Kay Drive Site conditions, the nature of the hazardous substances documented on-site, and the potential exposure pathways to nearby populations described in Sections II and III above, actual or threatened release of hazardous substances from the Site, if not addressed by implementing the response actions

selected in this Action Memorandum, would have presented an imminent and substantial endangerment to public health, welfare, or the environment.

VII. OUTSTANDING POLICY ISSUES

This removal action requires consideration of the nationally significant issue of cleanup of contaminants in residential interiors. This issue has been discussed with the Office of Solid Waste and Emergency Response Headquarters staff, who concur that because residential mercury contamination can result in the release of mercury to the external environment, cleanup of these interiors are therefore permissible.

VIII. ENFORCEMENT

For administrative purposes, information concerning the enforcement strategy for the Kay Drive Site is contained in the Enforcement Confidential Addendum.

The total EPA costs for this removal action based on full-cost accounting practices that will be eligible for cost recovery are estimated to be \$41,646.15¹.

$$(\$19,250 + \$10,000) + (42.38\% \times \$29,250) = \$41,646.15$$

IX. RECOMMENDATION

This decision document represents the selected removal action for the Kay Drive Mercury Site, developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This decision was based upon the Administrative Record for the Site. Because the conditions at the Site meet the NCP § 300.415(b)(2) criteria for an emergency removal, I recommend your approval of this removal action. The total

¹Direct Costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual total costs from this estimate will affect the United States' right to cost recovery.

project ceiling, if approved, will be \$19,250. Of this amount, an estimated \$13,750 may be used for cleanup contractor costs. You may indicate your decision by signing below.

APPROVE: Beverly J. Kuhl for DATE: 6/26/03
Chief, Emergency Response Branch

DISAPPROVE: _____ DATE: _____
Chief, Emergency Response Branch

Enforcement Addendum

Attachments

1. Detailed Cleanup Contractor Cost Estimate
2. Administrative Record Index
3. Region 5 EJ Analysis

cc: R. Worley, U.S. EPA, 5203-G
M. Chezick, U.S. DOI, **w/o Enf. Addendum**
J. Petro, Ohio Attorney General, **w/o Enf. Addendum**
C. Jones, OEPA, **w/o Enf. Addendum**

ENFORCEMENT ADDENDUM

**KAY DRIVE MERCURY SPILL SITE
ZANESVILLE, MUSKINGUM COUNTY, OHIO**

JUNE 2003

ENFORCEMENT CONFIDENTIAL
NOT SUBJECT TO DISCOVERY

(REDACTED 1 PAGE)

NOT RELEVANT TO THE SELECTION OF THE REMOVAL ACTION

ATTACHMENT 1

DETAILED CLEANUP CONTRACTOR ESTIMATE KAY DRIVE MERCURY SPILL SITE ZANESVILLE, MUSKINGUM COUNTY, OHIO JUNE 2003

The estimated cleanup contractor costs necessary to complete the emergency removal action at the Kay Drive Mercury Spill Site are as follows:

| | |
|-----------------------------|------------------|
| Personnel | \$ 5,000 |
| Equipment | 1,000 |
| Materials | 3,000 |
| Transportation and Disposal | \$ <u>3,000</u> |
| TOTAL | \$ 12,000 |

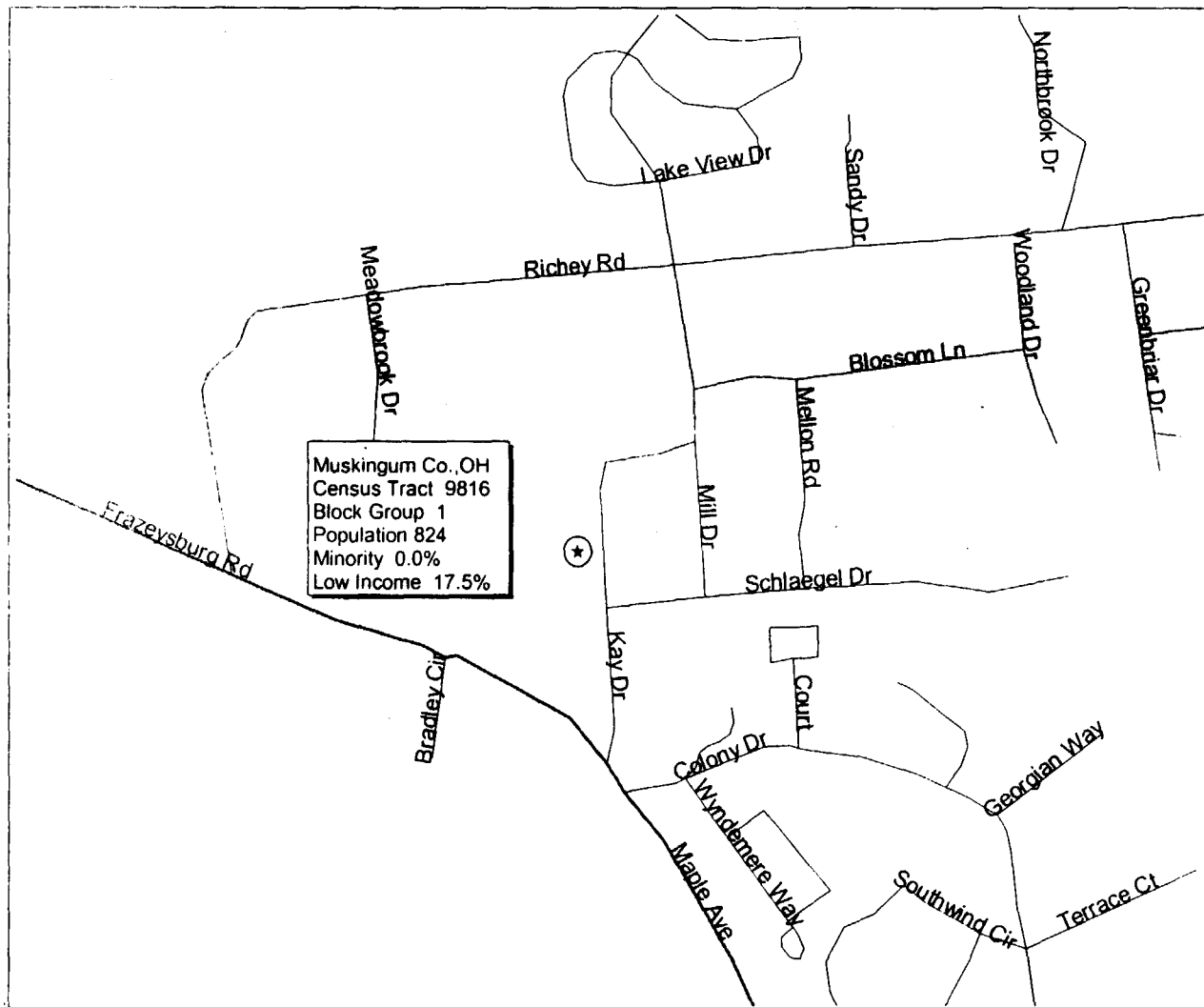
ATTACHMENT 2**U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTION****ADMINISTRATIVE RECORD
FOR
KAY DRIVE MERCURY SPILL
ZANESVILLE, MUSKINGUM COUNTY, OHIO****ORIGINAL
JUNE 20, 2003**

| <u>NO.</u> | <u>DATE</u> | <u>AUTHOR</u> | <u>RECIPIENT</u> | <u>TITLE/DESCRIPTION</u> | <u>PAGES</u> |
|------------|-------------|-------------------------|-----------------------|---|--------------|
| 1 | 02/07/03 | Jaster, M., U.S. EPA | File | Conversation Record re: OH EPA's request for U.S. EPA Assistance at the Kay Drive Mercury Spill Site | 1 |
| 2 | 02/14/03 | Jaster, M., U.S. EPA | Distribution List | POLREP #1 (Initial/Final) for the Emergency Removal Action at the Kay Drive Mercury Spill Site | 4 |
| 3 | 00/00/00 | Jaster, M. U.S. EPA | Karl, R., U.S. EPA | Action Memorandum: Request for an Emergency Removal Action at the Kay Drive Mercury Spill Site (PENDING) | |

ATTACHMENT 3
EJ ANALYSIS

Region 5 Superfund EJ Analysis

Kay Drive Mercury Spill Site Zanesville, OH



State of Ohio averages:
Minority 13%
Low Income 30%

U.S. EPA Region 5
Environmental Justice Case Criteria
for State of Ohio

Minority: 26% or greater

Low Income: 60% or greater

⊙ Site Location

0 0.2 0.4 0.6 0.8 Miles



Date of Map: 2/25/99

Source of Map: Census 2000 Database
MapInfo 5.0

**INDEPENDENT GOVERNMENT COST ESTIMATE
KAY DRIVE MERCURY SPILL SITE**

Decontamination (includes personnel, equipment and materials)

One home will require decontamination including: recovery of free metallic mercury and removal of contaminated household items and carpeting. Only living room of home is impacted.

Personnel includes: 1 Foreman and 3 Clean-up Technicians.

Equipment includes: 2 pick-up trucks, 1 mercury vacuum, and emergency response trailer.

Materials include: personal protective equipment costs and miscellaneous supplies.

| | |
|--------|-----------------|
| 1 home | \$ 9,000 |
|--------|-----------------|

Disposal

Forty cubic yards of mercury contaminated wastes will require T&D.

\$ 3,000

| | |
|--------------|------------------|
| TOTAL | \$ 12,000 |
|--------------|------------------|